

What is Claimed is:

1. An apparatus for eddy current inspection, the apparatus comprising:

an induction probe having an input operative to receive a train of pulsed electrical packets, a cluster of pulses being superimposed on each packet; and

wherein each pulse in the cluster of pulses has an amplitude that is proportional to an instantaneous amplitude of a major wave associated with the train of pulsed electrical packets, and wherein each pulse in the cluster of pulses has a frequency that is proportional to an instantaneous frequency of the major wave associated with the train of pulsed electrical packets.

2. An apparatus for eddy current inspection, the apparatus comprising:

an induction probe operative to emit a magnetic field corresponding to a train of pulsed packets, a cluster of pulses being superimposed on each packet; and

wherein each pulse in the cluster of pulses has an amplitude that is proportional to an instantaneous amplitude of a major wave associated with the train of pulsed packets, and wherein each pulse in the cluster of pulses has a frequency that is proportional to an instantaneous frequency of the major wave associated with the train of pulsed packets.

3. A method for eddy current inspection, the method comprising:

generating a train of pulsed electrical packets, a cluster of pulses being superimposed on each packet, wherein each pulse in the cluster of pulses has an amplitude that is proportional to an instantaneous amplitude of a major wave associated with the train of pulsed electrical packets, and wherein each pulse in the cluster of pulses has a frequency that is proportional to an instantaneous frequency of the major wave associated with the train of pulsed electrical packets;

inputting the train of pulsed electrical packets to an electromagnetic induction circuit, the electromagnetic induction circuit emitting a magnetic field in response to the inputting;

using the magnetic fields to induce eddy currents in a material; and

detecting the eddy currents in the material.

4. A method for eddy current inspection, the method comprising:

generating a magnetic field corresponding to a train of pulsed packets, a cluster of pulses being superimposed on each packet, wherein each pulse in the cluster of pulses has an amplitude that is proportional to an instantaneous amplitude of a major wave associated with the train of pulsed electrical packets, and wherein each pulse in the cluster of pulses has a frequency that is proportional to an instantaneous frequency of the major wave associated with the train of pulsed packets;

using the magnetic fields to induce eddy currents in a material; and

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detecting the eddy currents in the  
material.